

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006DIV		Priority SERIAL NO. 09744224	
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.		Priority FILING DATE November 15, 2000	
				Priority GROUP 1742			
U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date (if Appropriate)	
SK	AA	3,963,934	06/76	Ormrod			
	AB	4,132,614	01/79	Cuomo et al.			
	AC	4,149,907	04/79	Wronski et al.			
	AD	4,159,909	07/79	Wilson			
	AE	4,198,283	04/80	Class et al.			
	AF	4,209,375	06/80	Gates et al.			
	AG	4,385,979	05/83	Pierce et al.			
	AH	4,545,882	10/85	McKelvey			
	AI	4,629,859	12/86	Reddy			
	AJ	4,814,053	03/89	Shimokawato			
	AK	5,171,411	12/92	Hillendahl et al.			
SK	AL	5,215,639	06/93	Boys			
FOREIGN PATENT DOCUMENTS							
	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No
SK	AM 0335383 A2	10/89	EPO				✓
	AN 0626722 A1	11/94	EPO				✓
	AO 0882813 A1	12/98	EPO				✓
	AP 01096374	04/89	Japan				✓
SK	AQ 01096376	10/87	Japan				✓
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
SK	AR	Physical Metallurgy Principles 2d ed., 1973, p. 298.					
SK	AS	Phillips, V.A. et al., "The Effect of Certain Solute Elements on the Recrystallization of Copper", Journ. of Institute of Metals; Vol. 81, 1952-53, pp. 185-208. (No Date)					
SK	AT	Brizzolara et al., "Low Energy Sputtering of Eutectic Ag/Cu Alloys", Nuclear Instruments and Methods in Physics Research B26, 12/1987, pp. 528-531.					
EXAMINER S. Kastler				DATE CONSIDERED 7-04			
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006DIV	priority SERIAL NO. 89/314-314		
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.			
				priority FILING DATE November 15, 2000	priority GROUP 1742		
U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
SIC	AA	5,242,566	09/93	Parker			
	AB	5,268,236	12/93	Dumont et al.			
	AC	5,282,943	02/94	Lannutti et al.			
	AD	5,282,946	02/94	Kinoshita et al.			
	AE	5,336,386	08/94	Marx et al.			
	AF	5,397,050	03/95	Mueller			
	AG	5,490,914	02/96	Hurwitt et al.			
	AH	5,589,040	12/96	Nishimura			
	AI	5,674,367	10/97	Hunt et al.			
	AJ	5,772,858	06/98	Tepman.			
	AK	5,833,823	11/98	Gruenfelder et al.			
SIC	AL	5,846,389	12/98	Levine et al.			
FOREIGN PATENT DOCUMENTS							
	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No
SK	AM	02301585	12/13/90	Japan			✓
	AN	05078195	3/30/93	Japan			✓
	AO	06081138	01/03/94	Japan			✓
	AP	09249967	09/22/97	Japan			✓
SK	AQ	10287939	10/27/98	Japan			✓
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
SK	AR	Cabral, C. et al., "Preparation of Low Resistivity Cu-I at. %Cr Thin Films by Magnetron Sputtering", J. Vac. Sci. Technol. A 10(4), Jul/Aug 1992, pp. 1706-1711.					
SK	AS	Foster, N., "Composition and Structure of Sputtered Films of Ferroelectric Niobates", J. of Vac. Sci. and Tech., Vol. 8, No. 1, (1971), pp. 251-255.					
SK	AT	Haertling, G., "Hot-Pressed Ferroelectric Lead Zirconate Titanate Ceramics for Electro-Optical Applications", Ceramic Bulletin, Vol. 49, No. 6 (1970), pp. 564-567.					
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006DIV	priority SERIAL NO. 09744,344		
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.			
				priority FILING DATE November 15, 2000	priority GROUP 1742		
U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
SK	AA	6,010,583	01/00	Annayarapu et al.			
	AB	6,028,003	02/00	Frisa et al.			
	AC	6,039,855	03/00	Wollenberg			
	AD	6,042,752	03/00	Mitsui			
	AE	6,068,742	05/00	Daxinger et al.			
	AF	6,086,735	07/00	Gilman et al.			
	AG	6,117,281	09/00	Novbakhjian.			
	AH	6,139,701	10/00	Pavate et al.			
	AI	5,693,203	12/97	Ohhashi et al.			
	AJ	6,113,761	09/00	Kardokus et al.			
	AK	3,666,666	05/72	Haertling			
SK	AL	3,923,675	12/75	Mazdiyasi et al.			
FOREIGN PATENT DOCUMENTS							
	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No
SK	AM	61084389	4/28/86	Japan			✓
	AN	61113740	5/31/86	Japan			✓
	AO	62127438	6/9/87	Japan			✓
	AP	63064211	3/22/88	Japan			✓
SK	AQ	63118033	5/23/88	Japan			✓
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
SK	AR	Harper, J. et al., "Materials Issues in Copper Interconnections", MRS Bulletin, Aug. 1994, pp. 23-29.					
SK	AS	Igarashi, Y. et al., "Electromigration Properties of Copper-Zirconium Alloy Interconnects", J. Vac. Sci. Technol. B 16(5), Sep/Oct. 1998, pp. 2745-2750.					
SK	AT	Dierckxsens et al., "Effect of Trace Elements On the Recrystallization Behavior of High Purity Oxygen-Containing Copper", Erzmetall, (1975), 28(11), 496-500 (abstract only)					
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006DIV	priority SERIAL NO. 08/214,714			
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.				
				priority FILING DATE November 15, 2000	priority GROUP 1742			
U.S. PATENT DOCUMENTS								
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
SK	AA	4,676,827	06/87	Hosoda et al.				
	AB	4,814,053	03/89	Shimokawato				
	AC	4,986,856	01/91	Tanigawa et al.				
	AD	5,023,698	06/91	Kobayashi et al.				
	AE	5,066,617	11/91	Tanemoto et al.				
	AF	5,077,005	12/91	Kato				
	AG	5,314,651	05/94	Kulwicki				
	AH	5,719,447	02/98	Gardner				
	AI	5,833,820	11/98	Dubin				
	AJ	5,895,562	04/99	Dubin				
	AK	5,972,192	10/99	Dubin et al.				
SK	AL	6,093,966	07/00	Venkatraman et al.				
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
SK	AM	63235442	9/30/88					L
SK	AN	363033174	02/12/88					L
SK	AO	00/73531 A2	12/7/00					0
	AP							
	AQ							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
SK	AR			Massalski, T., "Binary Alloy Phase Diagrams", Vol. 1, American Society for Metals, Ohio 1986, pp. 18-19, 928-929, 936-937, 964-965.				
SK	AS			West, C., "International Critical Tables of Numerical Data, Physics, Chemistry and Technology", National Research Council of the USA, McGraw-Hill Book Co., Inc. 1933, 6 pages.				
SK	AT			Pierson, K. et al., "Total Sputtering Yield of Ag/Cu Alloys for Low Energy Argon Ions", Nucl. Instrum. Methods Phys. Res., Sect. B (1996), Vol. 108(3), pp. 290-299.				
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006DIV	PRIORITY SERIAL NO. 00777777
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.	
				priority FILING DATE November 15, 2000	priority GROUP 1742
U.S. PATENT DOCUMENTS					
*Examiner Initial		Document Number	Date	Name	Class Subclass Filing Date If Appropriate
SK	AA	6,117,281	09/00	Novbakhtian	
	AB	6,117,781	09/00	Lukanc et al.	
	AC	6,117,782	09/00	Lukanc et al.	
	AD	6,121,150	09/00	Avanzino et al.	
	AE	6,121,685	09/00	Gardner	
	AF	6,162,726	12/00	Dubin	
SK	AG	6,197,433	03/01	Hatano	
	AH				
	AI				
	AJ				
	AK				
	AL				
FOREIGN PATENT DOCUMENTS					
		Document Number	Date	Country	Class Subclass Translation Yes No
	AM				
	AN				
	AO				
	AP				
	AQ				
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)					
SK	AR			Rossnagel, S., "Direction and Preferential Sputtering-Based Physical Vapor Deposition", Thin Solid Films 263 (1995), pp. 1-12.	
SK	AS			Takekaki, T. et al., "Excellent Electro-Stress-Migration-Resistance Surface-Silicide Passivated Giant-Grain Cu-Mg Alloy Interconnect Technology for Giga Scale Integrations (GSI)", 1995 IEEE, pp. 10.5.1 - 10.5.4.	
	AT				
EXAMINER S. Kastler				DATE CONSIDERED 7-04	
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006D1V	SERIAL NO. 10/027,992
<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 24px; font-weight: bold;">OIP</div> <div style="position: absolute; top: 0; right: 0; width: 100px; height: 100px; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 12px; font-weight: bold;">JAN 26 2001</div> </div>				LIST OF ART CITED BY APPLICANT (One several sheets if necessary)	
				APPLICANT Janine K. Kardokus et al.	
				FILING DATE December 19, 2001	GROUP 1742

U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA						
	AB						
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	AK						
	AL						

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
✓	AM	JP 62116743	05-1987	Japan (abstract)				✓
	AN							
	AO							
	AP							
	AQ							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
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	AS		
	AT		

EXAMINER <div style="font-size: 1.2em; font-family: cursive;">S. Kastler</div>	DATE CONSIDERED <div style="font-size: 1.2em; font-family: cursive;">7-04</div>
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